

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

10.06. 00 APT

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2005/000039

International filing date (day/month/year)
05.01.2005

Priority date (day/month/year)
05.01.2004

International Patent Classification (IPC) or both national classification and IPC
B60R13/08, B64C1/40

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
 - ☒ paid additional fees under protest.
 - ☐ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-15 17-19
	No: Claims	1 16
Inventive step (IS)	Yes: Claims	2-15 17-19
	No: Claims	1 16
Industrial applicability (IA)	Yes: Claims	1 -19
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item IV

Lack of unity of invention

1. This International Searching Authority has found multiple (groups of) inventions in this international application, as follows:

a) First invention;

- Independent claim 1 - dependent claim 16;

- With the following title;

" Insulation structure comprising a film and a package constituted of a burn-through safe insulation material ".

b) Second invention;

- Independent claims 2 and 3 - dependent claims 4-15, 17-19;

- With the following title;

" Insulation structure comprising a film and a package constituted of alternating regions of burn-through safe and burn-through unsafe insulation materials ".

2. The reasoning for the non-unity is the following;

2.1 Special Technical Features ;

Document US-A-5240527 (referred to as D3) is taken here as the base for the reasoning and discloses all the features of a common set of technical features to independent claims 1, 2 and 3, set that could be considered as a common preamble to these claims; This common preamble can be written as follows;

" An insulation structure for the internal insulation of a vehicle, which comprises an insulation package, implemented using an insulation, and a film, which is positioned inside an intermediate space that includes internal paneling and an external skin of the vehicle."

These three independent claims 1, 2 and 3 having a common preamble only differ from one another by their respective characterising part, representing their respective special

technical features,

a) Special technical features of claim 1;
the insulation package is implemented homogeneously using a first (burn-through safe) insulation (1a), which insulation material is burn-through safe.

b1) Special technical features of claim 2;
The insulation package using distinct insulation regions (A,b,C), which are implemented using a first insulation (1a), which insulation material is burn-through safe, and a second insulation (1b), which insulation material is burn-through unsafe, these insulations regions being positionned along a finite series and laid next to one another up to a final insulation region (A,B,C), which insulation material is exchanged in alternating sequence.

b2) Special technical features of claim 3;
The insulation package is implemented homogeneously using a second (burn-through safe) insulation (1b), which insulation material is burn-through unsafe, in which multiple burn-through safe barrier layers (14,14a) are integrated.

c) It is to be noted that claims 2 and 3 have a common technical feature, namely alternating regions of burn-through safe and burn-through unsafe materials.

2.2 Problems to be solved when considering the prior art D3;

2.2.1 A common problem to be solved by independent claims 1, 2 and 3 deals with the difficulty of evacuating the passengers of a vehicle when a fire occurs outside a vehicle (a plane, in particular), and the flames ingress very quickly into the cabin or passenger compartment, rendering the rescue impossible in some cases.
This problem is well known and a solution to it has been the subject-matter of many applications. (see fields B60r13/08, B64c1/40, in particular).

2.2.2 Aside from this common problem, the following underlying problems can be defined;

a) Claim 1; problem 1;
The problem that can be raised when referring to the insulation structure of D3, is that neither the film **alone** nor the fiber blanket retards the combustion nor reduces smoke

effusion from any burning that does occur, or act as a barrier to flames with a short burn-through time, the fire passing through this film to be fed by the burn-through unsafe fibrous material.

The problem to be solved is therefore to substantially increase the time this insulation structure may withstand the fire or act as a fire-blocking structure.

b) Claims 2 and 3; common problem 2;

A common problem to be solved is that where both a highly efficient fire insulation and a sound insulation are heavily needed (depending, for instance, on where the insulation structure is used), the use of the known available structure of D3 would request the installation of an additionnal independent burn-through safe insulation; this additionnal insulation would render the whole insulation system rather complicated and costly to manufacture, transport, store, install (need of additionnal attachment means), maintain and replace.

2.3 Effect of these Special Technical Features ;

a) Claim 1; the effect of using an insulation package which is homogeneously made out of a burn-through safe insulating material together with a film, whether burn-through safe or unsafe, is to increase the burn-through time; this effect therefore solves the above addressed problem 1.

b) Claims 2 and 3; the introduction of alternating regions of burn-through safe and burn-through unsafe insulating material , it is possible to obtain a lighter and easy mountable insulation package, which has both functions, sound and fire insulation; costs of manufacture, transportation, storage and installation (attachment of only one unique package), maintenance and replacement can also be drastically cut. The whole structure can be enlightened and tailorized according to the sound/fire insulation needs, by variation of the thicknesses, number, nature and characteristics of the burn-through unsafe layers, which, in particular can be sound-absorbing and/or harder, and/or have mechanical properties that can ensure a better protection/support of the burn-through safe layers in case the outer skin of the airplane is damaged e.g. in an accident prior to catching fire.

2.4 Lack of correspondence between the problems and/or between the effects linked with the special technical features;

As can be deduced from the above detailed paragraphs;

- Paragraphs 2.2.2a) and 2.2.2b),
Problem 2 is not identical, nor does it correspond to problem 1.

- Paragraphs 2.1a), 2.1b1) and 2.1b2),

The special technical features of claim 1 don't solve problem 2, which is only solved by the special technical features of claim 2 and claim 3; the special technical features of claim 1 on the one hand, and of claims 2 and 3 on the other hand, are therefore not the same, nor are they corresponding.

Consequently, the present application does not relate to one invention only or to a group of inventions so linked as to form a single inventive concept ("requirement of unity of invention") and does not therefore comply with Rule 13.1 PCT.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1: PATENT ABSTRACTS OF JAPAN vol. 2003, no. 02, 5 February 2003 (2003-02-05) & JP 2002 283485 A (NICHIAS CORP), 3 October 2002 (2002-10-03)
- D2: WO 02/098707 A (OWENS CORNING; TILTON, JEFFREY, A; PATEL, BHARAT, D; BLOCK, THOMAS, T;) 12 December 2002 (2002-12-12)
- D3: US-A-5 240 527 (LOSTAK ET AL) 31 August 1993 (1993-08-31)
- D4: PATENT ABSTRACTS OF JAPAN vol. 2000, no. 23, 10 February 2001 (2001-02-10) & JP 2001 171030 A (TOKIWA ELECTRIC CO LTD), 26 June 2001 (2001-06-26)
- D5: PATENT ABSTRACTS OF JAPAN vol. 014, no. 237 (M-0976), 21 May 1990 (1990-05-21) & JP 02 062500 A (IMAE KOGYO KK; others: 02), 2 March 1990 (1990-03-02)
- D6: PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02, 29 February 1996 (1996-02-29) & JP 07 269777 A (DAIDO STEEL SHEET CORP), 20 October 1995 (1995-10-20)
- D7: DE 88 12 026 U1 (CHEMIE-WERK WEINSHEIM GMBH, 6520 WORMS, DE) 9 February 1989 (1989-02-09)
- D8: US-A-3 811 997 (YUAN E,US) 21 May 1974 (1974-05-21)

2. Statement as for invention 1; claims 1 and 16;

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The reason for this is that the document D1, considered as the best prior art, discloses (the references in parentheses applying to this document):

2.1 As for claim 1;

An insulation structure (100) for the internal insulation of a vehicle, which comprises an insulation package, implemented using an insulation (110), and a film (120), which is positioned inside an intermediate space that includes internal paneling and an external skin of the vehicle, wherein the insulation package is implemented homogeneously using a first insulation, whose insulation material is burn-through-safe.

2.2 As for claim dependent 16;
wherein the insulation package (110) is completely envelopped by the film (120).

2.3 Remarks;

- Documents D2, D4, D6 and D7 also disclose all the technical features of claim 1.
- Documents D6 and D7 also disclose all the technical features of claim 16.
- As for the lack of inventive step of claim 16, involving D2 and D3, refer to the written opinion edited with the partial search report on June the 30th, 2005.

3. Statement as for invention 2;

Claims involved;

Independent claims 2 and 3 - dependent claims 4 - 15 and 17 - 19.

3.1 Novelty;

3.1.1 As for claim 2;

The document D3 is regarded as being the closest prior art to the subject-matter of claim 2, and shows (the references in parentheses applying to this document):
An insulation structure for the internal insulation of a vehicle, which comprises an insulation package, implemented using an insulation, and a film, which is positioned inside an intermediate space that includes internal paneling and an external skin of the vehicle.

The subject-matter of claim 2 differs from this known insulation structure in that the insulation package uses distinct insulation regions (A,b,C), which are imple-

mented using a first insulation (1a), which insulation material is burn-through safe, and a second insulation (1b), which insulation material is burn-through unsafe, these insulations regions being positionned along a finite series and laid next to one another up to a final insulation region (A,B,C), which insulation material is exchanged in alternating sequence.

The subject-matter of claim 2 is therefore new (Article 33(2) PCT).

3.1.2 As for claim 3;

The document D3 is regarded as being the closest prior art to the subject-matter of claim 3, and shows (the references in parentheses applying to this document):
An insulation structure for the internal insulation of a vehicle, which comprises an insulation package, implemented using an insulation, and a film, which is positioned inside an intermediate space that includes internal paneling and an external skin of the vehicle.

The subject-matter of claim 3 differs from this known insulation structure in that the insulation package is implemented homogeneously using a second (burn-through safe) insulation (1b), which insulation material is burn-through unsafe, in which multiple burn-through safe barrier layers (14,14a) are integrated.

The subject-matter of claim 3 is therefore new (Article 33(2) PCT).

3.2 Inventive step - claims 2 and 3;

- The problem to be solved by the present invention may be regarded as the one detailed in paragraph 2.2.2b)
- Special technical features;
 - Claim 2; see detailed explanation in paragraph 2.1b1).
 - Claim 3; see detailed explanation in paragraph 2.1b2).
- Effect of the special technical features;
see detailed explanation in paragraph 2.3b).

The effect of the special technical features of both claims 2 and 3 solves the above cited problem; the subject-matter of claims 2 and 3 is therefore considered as also involving an inventive step. (Article 33(3) PCT).

3.3 Dependent claims 4 to 15 and 17 to 19 are dependent on claim 2 and/or on claim

3, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

5. Industrial applicability ; automotive industry.

Re Item VIII

Certain observations on the international application

1. Clarity ;

The application does not meet the requirements of Article 6 PCT, because the subject-matter of dependent claims 11 to 15 and 17 to 19 is not clear, as it lacks antecedent pieces, in particular.

The reasons for this are;

1.1 When considering these claims 11 to 15 and 17 to 19 as dependent on claim 1, their subject-matter comprises expressions and /or features that have not been defined in claim 1.

1.2 In independent claim 3, a "second insulation (1b) (an identical insulation)" is referred to without a definition of or a reference to any first insulation; a first insulation is defined/referred to in independent claim 2, only; claim 3 would therefore have a meaning when dependent on claim 2.

1.3 As for claim 11; this claim is written as dependent on claims 1 through 3; Subject-matter of claim 11 comprises expressions that have not been defined in claim 1, but only in claim 2 (" the first and the second insulation ") or in claim 3 (" the insulation regions of the barriers layers"); claim 11 should therefore be rendered dependent on claim 2 or claim 3.

The expression " the insulation regions of the barriers layers" is not clear by itself; refer to subject-matter of claim 12 and in particular to the expression " the insulation regions (A,B,C) or the barriers layers".

1.4 As for claim 12; this claim is written as dependent on claims 1 through 3; Subject-matter of claim 12 comprises expressions that have not been defined in claim 1, but only in claim 2 (" the insulations (1a,1b) ") or in claim 3 (" the insulation regions

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(A,B,C) or the barrier layers (14a,14b)"); claim 12 should therefore be rendered dependent on claim 2 or claim 3.

1.5 As for claim 13; this claim is written as dependent on claims 1 through 3; Subject-matter of claim 13 comprises expressions that have not been defined in claim 1, but only in claim 2 (" the first insulation ") or in claim 3 (" the barrier layers (14a,14b) "); claim 12 should therefore be rendered dependent on claim 2 or claim 3.

1.6 As for claims 14 and 15; as dependent on claim 13, their subject-matter is also not clear.

1.7 As for claim 17; this claim is written as dependent on claims 1 through 3; This claim 17 refers to " insulations (1a,1b) or the insulation regions (A,B,C) " The expression " insulations (1a,1b) is not defined in claim 1 or in claim 3, but in claim 2 only; The expression " the insulation regions (A,B,C) " is not defined in claim 1 or in claim 3, but in claim 2 only; Claim 17 can therefore only be dependent on claim 2 or one of its dependent claims.

1.8 As for claim 18; this claim is written as dependent on claims 3 AND 17; This claim 18 refers to "barriers layers (14a, 14b)", whereas; . " barrier layers (14,14a)" are referred to in claim 3 only, and . claim 17 refers to " insulations (1a,1b) or the insulation regions (A,B,C) " defined in claim 2 (see above paragraph 1.2) only, and not in claim 3.
Claim 18 cannot therefore be dependent on both claims 3 and 17, unless claim 3 is dependent on claim 2.

1.9 As for claim 19; this claim is written as dependent on claims 1 through 3; This claim refers to the both of the following expressions;
- " first insulation (1a) " ,
defined in claim 1, in claim 2, and not defined in claim 3,
- **and** " barriers layers (14a,14b) " ,
defined for the first time in claim 3 and not defined in claim 1 or claim 2.
Claim 19 can therefore be dependent on claim 2 separately;
Claim 19 cannot therefore be dependent on claim 1;
Claim 19 cannot therefore be dependent on claim 3 separately;
Claim 19 can be dependent on claim 3, **only if claim 3 is dependent on claim 2.**